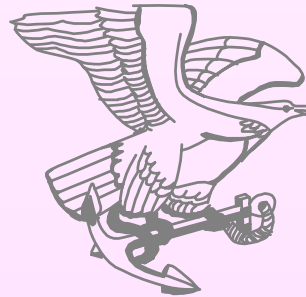


Research and Technology

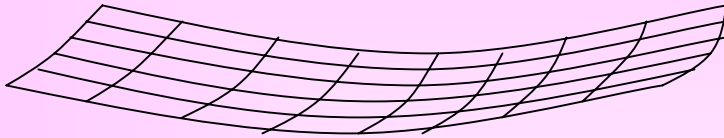


Marine Safety and Environmental Stewardship

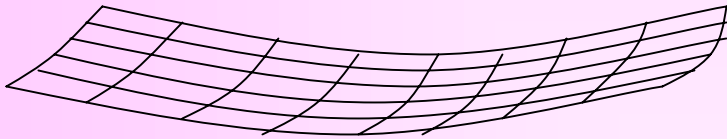
Social Accountability
(zero tolerance)

Good Business
(asset integrity management)

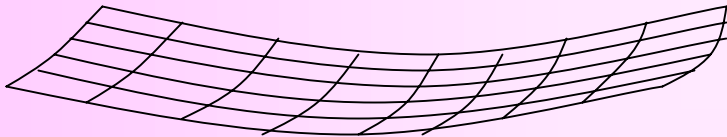
Safety and Environmental Protection



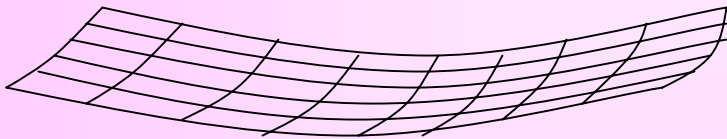
Owner



Designer/Shipyard



Class Society



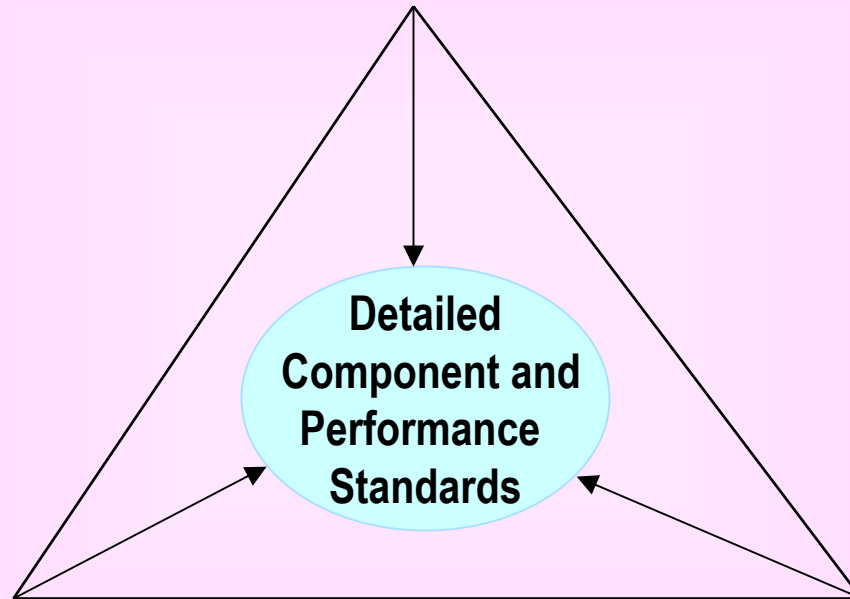
Regulatory Bodies

The Safety Net

Function - Fitness - Safety

Owner's Requirements

not addressed elsewhere
mission related
owner unique



Classification Rules

structural and mechanical fitness
physical attributes of ship

Statutory Compliance

safety of life issues
environmental protection

Baseline Technical Standards

Standards must be:

Current

Rational

Dynamic

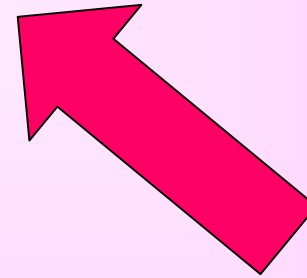
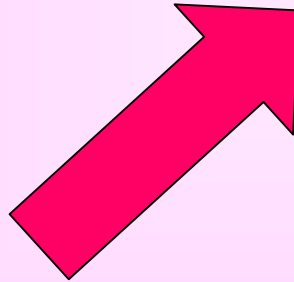
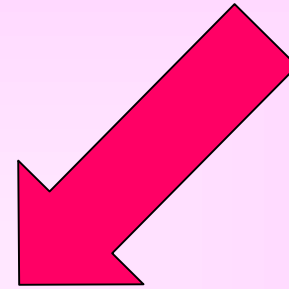
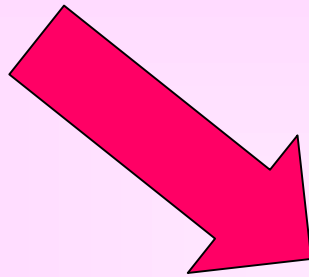
**Research and
Technology**

Experience

Standards

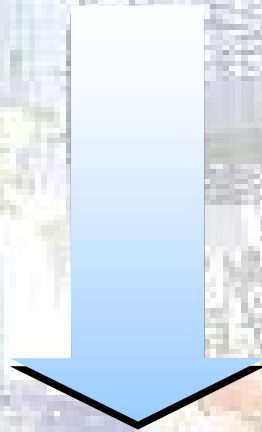
**Common
Sense**

**Cost
(social/economic)**



A Clear Focus

“From enhanced technology for the innovative & demanding marine sectors



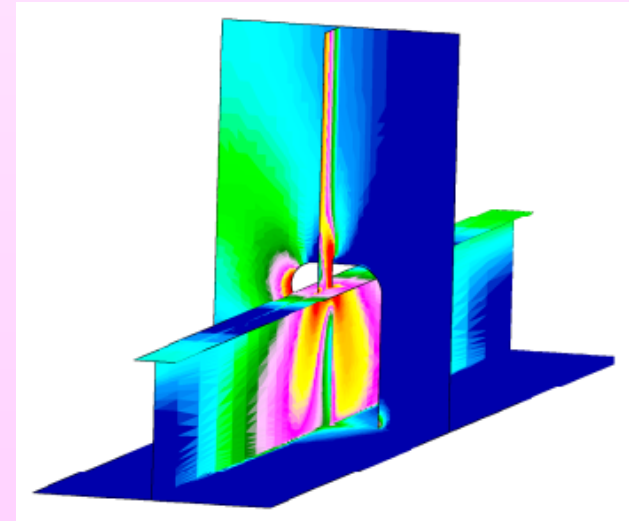
To risk-based assessments of design, inspection, and maintenance issues”

Key Technology Thrust Areas

- 
- ◆ Ship Structure Technology
 - ◆ Simulation Technology
 - ◆ Offshore Technology
 - ◆ Human Element Technology
 - ◆ Marine Engineering
 - ◆ Risk & Reliability

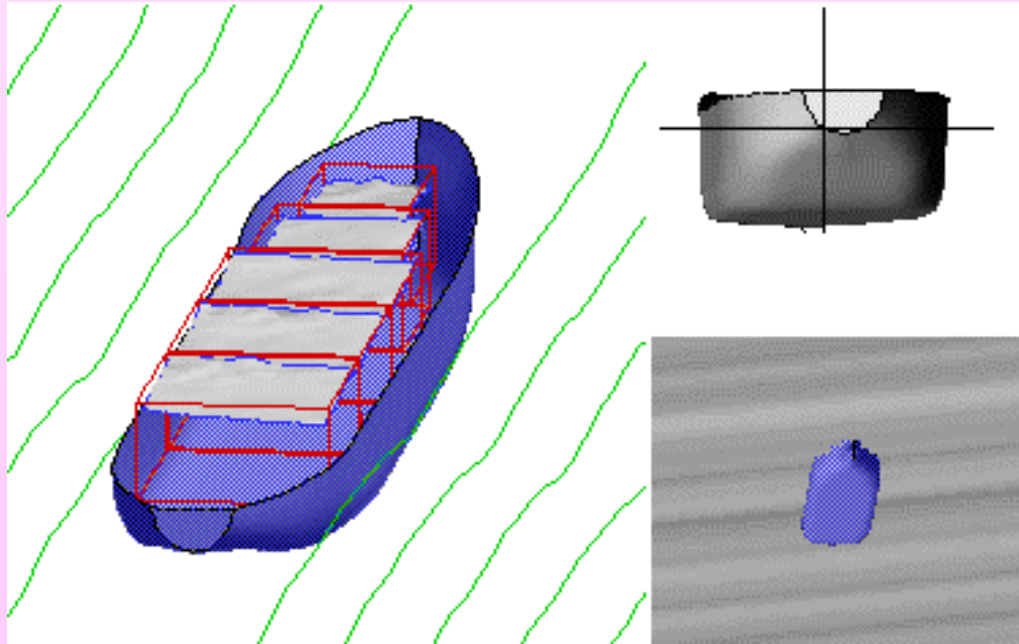
Ship Structure and Loads

- ◆ Wave Loads and Seakeeping
 - Wave database, nonlinear loads, hydrodynamic impact loads, high speed ships, simulations
 - Tank sloshing
- ◆ Ship Structures
 - Nonlinear ultimate strength
 - Structural details
 - Collision & grounding
- ◆ Probabilistic-Based Methods
 - Structural reliability studies and criteria development



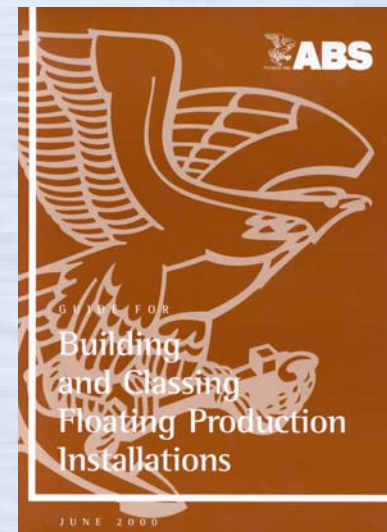
Simulation Technology

- ◆ Model Physical Process
- ◆ Investigate Alternatives
- ◆ Understand System Relationships



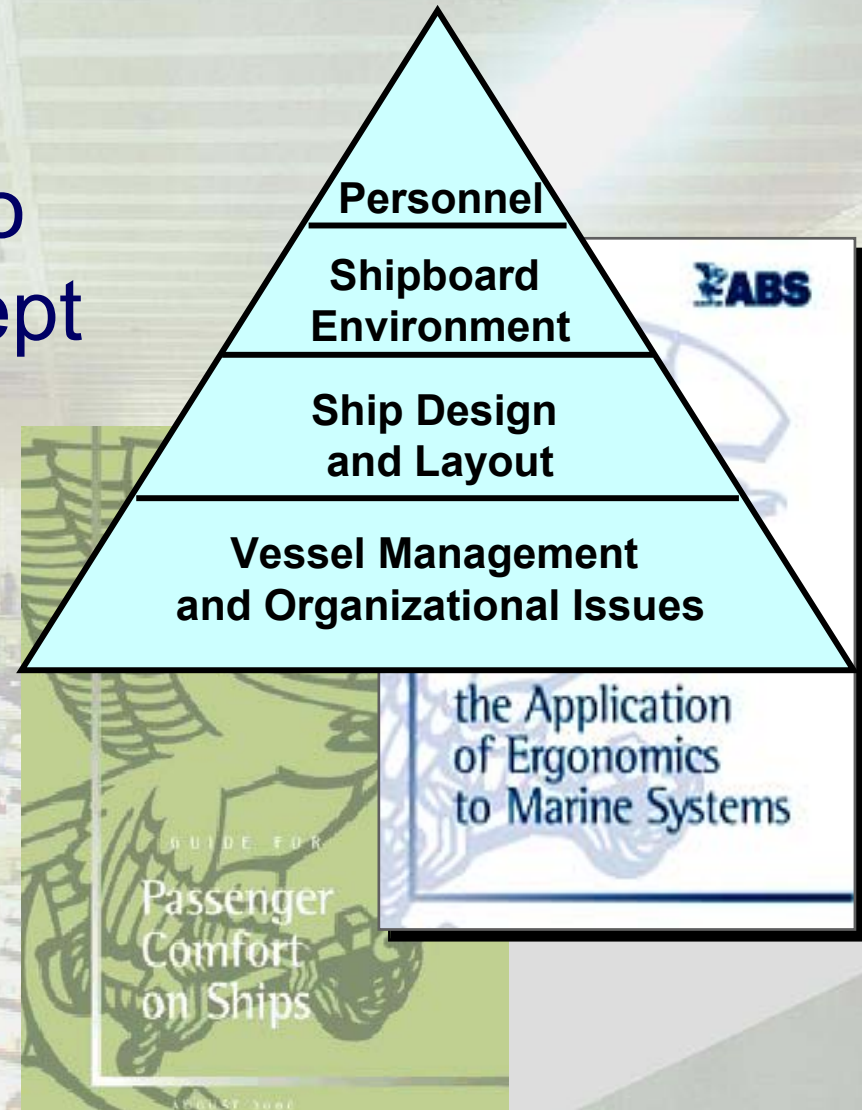
Offshore Technology

- ◆ Update Rules/Guides (MODU, FPI, Pipelines & Risers)
- ◆ Structural Guidance (Jack-Ups, FPI Ultimate Strength, Fatigue & Fracture)
- ◆ Subsea Production Guide
- ◆ Risk-Based Classification



Human Element Technology

- ◆ Incorporation of the Human Element into the SafeShip Concept
- ◆ Guides for Crew Habitability and Passenger Comfort
- ◆ ABS Ergonomics Guidance Notes (Revision 1)



Marine Engineering Systems

- ◆ Reliability Centered Maintenance
- ◆ Performance-Based Fire Protection
- ◆ Machinery Rules Criteria and Analytical Tools Development



Risk & Reliability

- ◆ **Risk and Reliability Concepts Integrated in All ABS Activity**
- ◆ **Developing Quantitative and Qualitative Risk-Assessment Tools**
- ◆ **Integrated Risk Management Project**
 - **Prototype-FPSO Model**
 - **Risk Rank Rules**
 - **Risk Equivalency Guide**
 - **Training - Engineers and Surveyors**
- ◆ **Risk-Based Inspection Development**
- ◆ **Reliability-Based Renewal Criteria**

Summary

The Future is Now . . .

Safety as social responsibility

Intolerance to Pollution of any kind

Environmental Sustainability

Management and Operational Responsibility

Satisfactory Industry Self - Regulation or
others will dictate

The Marine Transportation System (MTS)